19980613.ba v02_n090.bam.980613

>From ???@??? Sat Jun 13 18:59:59 1998
Message-Id: <199806131830.NAA22976@sco.theporch.com>
Date: Sat, 13 Jun 1998 13:29:19 CDT
Subject: BOATANCHORS digest 2090

BOATANCHORS Digest 2090

Topics covered in this issue include:

To: Old Tube Radios <boatanchors@theporch.com>
From: "A. B. Bonds" <ab@vuse.vanderbilt.edu>
Subject: Re: tube tester thread
Message-Id: <1998Jun12.102721-0500@spike.vuse.vanderbilt.edu>
Date: 12 Jun 1998 10:27:15 -0500
MIME-Version: 1.0

In <3.0.5.32.19980611190049.0085c460@pop.pipeline.com>, Lawrence R. Ware wrote:

>1) Assuming you feel that a *good* tube tester really tests them
>better than the one your father used in the local drugstore:
>Which do you recommend? And why?

Drugstore testers generally test only the tube's emission. That isn't altogether bad, since if the emission (plate/cathode current) is lousy, then the tube is likely to be lousy. If the emission is good, that don't mean you got a winner. A he-man (er...he-person? they-person?) tester also tests trans- (or mutual) conductance, which is the ratio of the tube current as a function of grid voltage. That's a little more information.

That being said, it has been very rare that the emission indication from my old Supreme has given me any LESS info regarding tube viability than my Hickok 600A or TV-7D. Basically sez "bad" or "maybe".

I use them mainly to hit rejects. For example, some fly-by-night used-car type talked me into buying an ice chest full of crummy old tubes. I can quickly find out those that most likely won't work, but I don't believe for a moment that a needle in the green means the tube is bulletproof. It will also reveal those toobs that might blow up my stuff due to internal shorts, and I've seen a few of those.

Recommendations: Probably should have a mutual conductance checker (mhos). I have four, a Hickok 600A, an I-177, a TV-7D and a Jackson 348. They all read about the same on a given tube, plus-minus 10%. The Jackson is eaiest to use (pushbuttons) but the chart is not very complete. The I-177 does not test a lot of miniatures without using a cumbersome adapter gizmo. My Gold Standard is the 600A, simply 'cuz I have not used the TV-7D enough to trust it fully. Note that none or these will test nuvistors or compactrons or, to my knowledge, many transmitting tubes, without adaptors and the like.
>
>2) If you sell into the audiophile market, it doesn't really matter
>what you think about testers; What they think sets their buying
>patterns. What do they swear by? TV-7? TV-2? Hickok? Black
>magic under a full moon? :-)
>
I should think TV-7 or T-2, but a Hickok 539 swings a lot of weight. It has more meters, ya know.

>3) Are the TV-7 or TV-2 capable of testing smaller transmitter tubes?
>Say from the 6146 to the 4CX250?

Dunno.
>
>4) If you could have only one tube tester, which would it be?
>And why?
>
600A. The 6000 tests more modern tubes (nuvistors and compactrons) but does not have 4-, 5-, 6- amd 7-pin (-large) sockets. I think there is some adapter gizmo that permits that, but I've never seen one.

>5) If you believe that 90% of tube testing is smoke and mirrors,
>we would probably get along. But what matters if your trying to
>sell them is what the customer believes. Anyone know what this
>weeks *holy grail* is? Besides the Tek 570?
>
For whatever reason a TV-something or a 539 seem to be Authoritative.

73 A. B. Bonds

Message-ID: <01BD95F8.11E6AC40@dstephen.gmsiworld.com>
From: Ed Sieb <esieb@gmsiworld.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: Need help on Bird Ham-mate Wattmeter.
Date: Fri, 12 Jun 1998 11:48:50 -0400
MIME-Version: 1.0

Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit

Probably a "4350".
You should be able to get the actual manual from Bird.

Ed, VA3ES

Date: Fri, 12 Jun 1998 12:24:18 -0400
From: ads@mhcnet.lucent.com (Alex Schapira)
Message-Id: <199806121624.MAA25345@work>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Looking for 10.7 MHz xtal for sweep generator
Cc: ads@mhcnet.lucent.com

Greetings,
I picked up an Eico FM/TV sweep generator for which I need a 10.7 MHz
or sub-multiple xtal for a marker. Anyone got an extra? Thanks.

Lest you think this is off topic, both the generator and its intended victims
are BA's.

     -Al Schapira
      schapira@lucent.com

Message-ID:
<c=US%a=_ecs%p=ElectroSys%l=WEBMASTER-980612172820Z-130@webmaster.eletrosys.com>
From: Terry Muncey <tsm@electrosys.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Tube Testers
Date: Fri, 12 Jun 1998 12:28:20 -0500
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit

Anyone who uses a TV-7 must have, by now, run across some apparent
errors in the switch settings for certain tubes, and what keeps coming
to mind as I reflect on the tube testing errors that I have experienced
with my TV-7 are miniature triple triodes where 2 sections test good and
the 3d tests with almost no reading at all. For this reason, I have a
Signal Corps TV-3 that I use as a backup when I run into testing
problems with the TV-7. I believe that I have the up-to-date TV-7
military manual for switch settings and wonder if someone else out there
has this periodic problem?

Message-Id: <2.2.32.19980612175039.00d37924@ntpop.usnews.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Date: Fri, 12 Jun 1998 13:50:39 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Avery Comarow <acomarow@usnews.com>
Subject: FS: Instructograph, Osterman/2nd ed.

Remarkably clean Instructograph machine for learning code from punched paper tapes. This is one of the later models, probably built between late '50s and early '60s, with solid-state oscillator for headphones. With 11 paper tapes. $45 plus shipping.

Shortwave Receivers Past & Present, Fred Osterman's terrific guide. 2nd edition, excellent condition, $12 shipped.

Avery W4OGK

Message-ID: <35816BE5.B35@revealed.net>
Date: Fri, 12 Jun 1998 12:56:53 -0500
From: Mike Souhrada <wb9iog@revealed.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Tube tester thread
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Well guess I'll have to add my ancient piece of gear.

Precision 910 with G-140 adaptor. Lots of manuals to
bring it up to date. Hate to use the roll chart.

This unit has never let me down-rarely have I found a tube
I can't test ie. 1 out of 100 at the most. The only tube I
cannot test is a few ceramics 7580W/4CX250R'S and the 8122's.
I've bought tubes from Dexter Francis and compared his reading
with mine-belive he's using a TV-7 + others. They compared very closely.
This was not to test Dexter but to test my instrument for validity.
To my knowledge never found any typo errors or false reading.
However, not sure what the thing is really telling me (emissions
or conductivity) or whatever. It just works! Definitely not the
drug store good/bad test device.

Been looking for the schematic for this 15+ years and may have
recently found a source who is providing the Precision E-410 sweep
manual. About the only problem I've had was the line adjustment
pot was wearing out in the position being used. Salvaged it by

swapping leads to the other side of the control. Also on occasion
I forget to read fully the test instructions for internal short
tests-I'm reminded when the tube doesn't work. Common problem
for the 6EJ7 in Drake gear.

I'd really be lost without this tool. Best of all it was free
for the taking! It came from an old friend and lost track of
him Gunnar Ohlson who moved to la la land. (Calif.)

Mike
Le Claire, Ia

Message-ID: <35819913.19C@idirect.com>
Date: Fri, 12 Jun 1998 14:09:39 -0700
From: Jerry Proc <jproc@idirect.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tube Testers
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Dear BA'ers,

Over the years, I have found that tube testers, regardless of type or
model, should
be used as an 'interpretive' tool only. On many occassions receiving
tubes designed for RF applications will show as GOOD but they *won't*
work a darn in the intended circuit. TV tuner RF Amps (6J6) and
mixer/oscillators are the best examples. What about rectifiers that may
short under load but work perfectly fine in test mode?
A tube tester won't weed those out.

I don't know how many times I've tested a tube which is falls into the
questionable or red region of the scale, yet it works in the circuit. A
few times, when I had no substitute and the tester registered as the
tube as bad, I purchased a new tube only to find that the problem was
still there and there was nothing wrong with the old one. The only time
that I place more faith in my tuber tester is when the needle is in the
low red region.

There are some anomolies in the 'settings' for various tubes testers.
Some cause lower than normal emission readings while others may be
outright wrong as outlined in another post. Nothing will ever replace
substitution as the ultimate method of deciding whether a tube is good
or bad.

--

Regards,
Jerry Proc
jproc@idirect.com

Date: Fri, 12 Jun 1998 14:14:13 -0400 (EDT)
Message-Id: <199806121814.OAA11160@smtp13.bellglobal.com>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Andre Guibert <aguibert@sympatico.ca>
Subject: Tube Testers

Bonjour to All

I have a Canadian Marconi modified what seems to a
Hickock tube tester and named Nato Tube tester Model CM1.
Also an Avo MK3 tube tester the Avo Valve Data Manual
Edition 19.
The Avo model gives much more accurate results with its
AC test method for mutual conductance.
The set ups and testing sequences are as strange as
driving a right hand drive car in America, but you
get used to it

Andre

Message-ID: <01BD9616.A041DDC0@SERV_BDC>
From: Chuck Swiger <cswiger@widomaker.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: What Strange Tube is This? 1P25
Date: Fri, 12 Jun 1998 15:27:25 -0400
MIME-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit

From: Rudolf H. Salomon[SMTP:rhs@pacbell.net]
About: Re: What Strange Tube is This? 1P25

>Allen Tucholski wrote:
>> I picked up a Farnsworth 1P25 tube at the last hamfest. It is a neat
>Allen, this is a WWII Infrared Image Converter tube.

Wow, does that bring back some memories. Somehow the number '6032'
comes to mind but in the 70's a magazine called 'Radio Electronics' had an
article on making a night vision project with one of those (Also motivated
by some juvenile fiction from a 'Rick Brant' electronic adventure book).
Basically surplus parts were available from Edmund's scientific supply, the
image converter, plus you need an infrared 'spotlight', like a car headlamp in
a gold reflector with a filter, ran off 12V. You need a focus grid voltage,
which we derived from many, many 100Mohm resistors in series, and the
20Kv power supply, which we got from and thus tethered to an old TV set.
Wrapped the tube in foam and shoved into a peice of pvc pipe, then used
a projector lens to focus light on the big end of the converter, and a small
eyepiece to look at the phospher end. I tell you, it's a little scary putting
one's eyeball up to a device connected to a picture tube anode lead but
after we got used to it was a lot of fun, especially aimed out the window
at night, because thru the converter you can see the infrared spotlight
illuminate things just like a regular flashlight, but even looking directly into
the
lamp/filter with eyes one can barely see a filament glowing (but can sure
FEEL the heat!).

Interesting project.

Chuck
kb4new
cswiger@widomaker.com

Message-Id: <3.0.1.32.19980612131921.0082c770@marlin.nosc.mil>
Date: Fri, 12 Jun 1998 13:19:21 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Edward Zeranski <ejz@nosc.mil>
Subject: RE: What Strange Tube is This? 1P25
Cc: boatanchors@theporch.com
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

At 03:27 PM 6/12/98 -0400, you wrote:
>From: Rudolf H. Salomon[SMTP:rhs@pacbell.net]
>About: Re: What Strange Tube is This? 1P25

    I found a 1P25 a year or so ago, NIB, which was passed to a BA member.
>From what he told me, the tube was used in the early night sights like the
one commonly pictured with an M1 or M2 carbine during the Korean War era.

Ed Zeranski This is a private opinion or statement.

home email: ezeran@cris.com

Message-ID: <358190E8.7D90F128@olywa.net>
Date: Fri, 12 Jun 1998 13:34:48 -0700
From: Ethan <ethan@olywa.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Tube Testers
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

> The Avo model gives much more accurate results with its AC test method
> for mutual conductance.

I've heard great things about AVOs- never even seen one in person.
Anyone happen to have one available FS/FT?

Ethan

Date: Fri, 12 Jun 1998 18:19:11 -0500
From: "Wayne and Deb Harrah (KE0MS & KF0TH)" <Wayne.Harrah@mci2000.com>
Subject: Heathkit mike WTB
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <3581B76F.8BE21A18@mci2000.com>
MIME-version: 1.0
Content-type: text/plain; charset=us-ascii
Content-transfer-encoding: 7bit

Hello Boatpeople,

Does anybody happen to have a HDP-21A desk microphone laying around that
they would sell? I just bought my first Heathkit HW-101, and would like
a correct desk mike. Excellent condition not critical if price isn't
either. :)

Please respond via private email to avoid bandwidth (and to ensure I
read it right away- just moved and am over 5 weeks behind in reflector
mail!)

Thanx.

Buzz Harrah, ke0ms
--

            | Mailto:Wayne.Harrah@mci2000.com

```
          /O\            New follower of tubes that glow,
\_______[|(.)|]_______/  and those People and machines
  o   ++/  O  \++   o    which served this country so well.
```

Date: Fri, 12 Jun 1998 18:20:59 -0500
From: "Wayne and Deb Harrah (KE0MS & KF0TH)" <Wayne.Harrah@mci2000.com>
Subject: additional info on HDP-21A
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <3581B7DB.977E0260@mci2000.com>
MIME-version: 1.0
Content-type: text/plain; charset=us-ascii
Content-transfer-encoding: 7bit

This microphone is the tall 'ugly' one with the split screen over the mouthpiece area. Sorry for the BW. Email me your number and I'll call you to talk more on my dime.

Thanx!

Buzz, ke0ms
--

```
           |             Mailto:Wayne.Harrah@mci2000.com
          /O\            New follower of tubes that glow,
\_______[|(.)|]_______/  and those People and machines
  o   ++/  O  \++   o    which served this country so well.
```

Message-Id: <199806122319.QAA08411@mail-gw2.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: Being conned about browsers
Date: Fri, 12 Jun 1998 16:21:04 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

> This is about something which regularly happens to BA-fanciers and
> Glowbuggers; but it's also about something which is NOT in the spirit of
> Boatanchory ....

Hear, hear, Bill!! Well said.

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Message-Id: <199806122331.QAA13315@mail-gw2.pacbell.net>
From: "Arden Allen" <gumbear@pacbell.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: B&W 370 SSB Adapter
Date: Fri, 12 Jun 1998 16:33:28 -0700
MIME-Version: 1.0
Content-Type: text/plain; charset=ISO-8859-1
Content-Transfer-Encoding: 7bit

> The I.F. is 455 kc. which has now become the
> R.M.A. standard", whatever R.M.A. is

Radio Manufacturer's Association. Later it became RETMA ---- Radio, Electronics and Television Manufacturer's Association. That's where the RMA and RETMA resistor color codes came from. What are they called nowadays, anybody know?

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Date: Fri, 12 Jun 1998 19:01:19 -0500 (CDT)
From: Bob Roehrig <broehrig@admin.aurora.edu>
To: Old Tube Radios <boatanchors@theporch.com>
cc: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: HQ-129X osc.
Message-ID: <Pine.ULT.3.96.980612185706.9883C-100000@admin.aurora.edu>
MIME-Version: 1.0
Content-Type: TEXT/PLAIN; charset=US-ASCII

On Wed, 10 Jun 1998, Bob Roehrig wrote:
> >
> > Does anyone know why it is (was) general practice to have high side
> > injection? Advantages/disadvantages ??????????

On Wed, 10 Jun 1998, John Kolb wrote:

> Simple case of math - for the bcst band, 540 kHz - 1600, with
> high side injection and a 455 kHz IF, the LO is 995 - 2055 kHz.
> With low side injection, the Lo would be 85 - 1145 kHz. It would
> be very hard to make an osc varying over a 13:1 ratio track with
> an RF stage varying over a 3:1 ratio. While the tracking might
> be made to work on a single band set, becomes a real nightmare
> for a multiband set.

So far, yours and Bill Hawkins's are the only responses I saw to this, both essentially saying the same thing, which I had not thought about. Of course this would be the reason, especially for below a few Megs.

"Nostalgia is a thing of the past"
E-mail broehrig@admin.aurora.edu 73 de Bob, K9EUI
CIS: Data / Telecom Aurora University, Aurora, IL
630-844-4898 Fax 630-844-5530

Message-Id: <3.0.1.32.19980612174826.0068d3a8@a.crl.com>
Date: Fri, 12 Jun 1998 17:48:26 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Phil Mills <pmills@a.crl.com>
Subject: Globe King project just died
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

Well, my Globe King restoration project just died this afternoon. I checked out the power supply and found that the HV plate transformer is bad....I even removed it from the chassis and took the covers off but the short is deep inside somewhere.

Many thanks for all the info and assistance provided by several BA list members. I've learned a fair amount and will be keeping my eye open at future hamfests for another restorable example.

thanks again & 73,
Phil

Phil Mills AB5TH
pmills@a.crl.com
Friendswood, TX

From: gwoods@albany.net (Gary Woods)
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: B&W 370 SSB Adapter
Date: Sat, 13 Jun 1998 02:04:30 GMT
Message-ID: <3588de02.87577901@mail.albany.net>
MIME-Version: 1.0
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

On Fri, 12 Jun 1998 16:33:28 -0700, you wrote:

>Radio Manufacturer's Association. Later it became RETMA ---- Radio,
>Electronics and Television Manufacturer's Association. That's where the
>RMA and RETMA resistor color codes came from. What are they called

>nowadays, anybody know?

EIAJ

Couldn't resist!
--
Gary Woods O- K2AHC Public key at www.albany.net/~gwoods, or get 0x1D64A93D via keyserver
gwoods@albany.net gwoods@wrgb.com
fingerprint = E2 6F 50 93 7B C7 F3 CA 1F 8B 3C C0 B0 28 68 0B

Message-Id: <3.0.5.32.19980612213601.0089fb00@mail1.telalink.net>
Date: Fri, 12 Jun 1998 21:36:01 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Tom Norris <badger@telalink.net>
Subject: Re: tube tester thread
Cc: boatanchors@theporch.com
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

In regards to the Tube Tester Thread, what are folks thoughts on the
TV-3? I have one waiting at the Post Office to pick up in the morning.
I know I have heard it mentioned in Navy tech manuals, but beyond that,
and beyond the fact that I think I have to find an adaptor of some sort
for some tubes next, what else good or bad can anyone say about it?

73

Tom

(hmmm almost enough run-on in that message to enter in the Bulwar-Litton
contest. I should have just tried to say it all in one sentence and it WOULD
have qualified, except I would have had to start it out with "It was a Dark
and
Stormy Night, and I was looking for info on the TV-3.....") LOL

Date: Fri, 12 Jun 1998 22:56:20 -0500
From: "Wayne and Deb Harrah (KE0MS & KF0TH)" <Wayne.Harrah@mci2000.com>
Subject: Re: additional info on HDP-21A
To: Old Tube Radios <boatanchors@theporch.com>
Cc: don merz <71333.144@compuserve.com>
Message-id: <3581F864.E13A2622@mci2000.com>
MIME-version: 1.0
Content-type: text/plain; charset=us-ascii
Content-transfer-encoding: 7bit

Anchorites (Especially you GREEN ones):

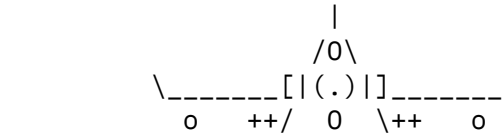
Don has set me straight; the number I gave you all was the HeathKit
House number for an EV-638A. So, I learned something.

...Now, are there any out there to be had, and if so, are they made with
enough lead (instead of gold) that I might afford one? :]

Let me know. Thanks.

Buzz (Wayne) Harrah, ke0ms

don merz wrote:
>
> Yes, that's it--it's an Electro-Voice 638A. I don't think Heathkit ever actually
made any microphones. They just sold others
> mics under their model numbers.
>



Message-ID: <35820130.3DC0@ix.netcom.com>
Date: Fri, 12 Jun 1998 23:33:52 -0500
From: "David L. Stinson" <arc5@ix.netcom.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: ID-66/AXR-1 Ring a Bell?
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Anyone familiar with an airborne CRT display
known as an ID-66/AXR-1?
Anyone got any info?

Thanks,
Dave AB5S
arc5@ix.netcom.com

Message-Id: <3.0.5.16.19980613015951.2e0f1828@istar.ca>
Date: Sat, 13 Jun 1998 01:59:51 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Ralph Parker <rparker@istar.ca>

Subject: AVO tube tester
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

>I've heard great things about AVOs- never even seen one in person.
>Ethan

I remember using one in about 1963 while working for CBC-TV in Edmonton.
Big sloping front thing. Lots of knobs. Took a lot of time to check a tube,
but probably was worth it. Haven't seen one since.
Ralph, VE7XF

Message-Id: <3.0.5.32.19980613091244.009a7b10@mail1.telalink.net>
Date: Sat, 13 Jun 1998 09:12:44 -0500
To: Old Tube Radios <boatanchors@theporch.com>
From: Tom Norris <badger@telalink.net>
Subject: Field Phones: a question of current....
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

(to multiple recipients, including the BA list)

I have what may be a stupid question about field phones in general -
the EE-8, TA-312, TA-43, etc. I have a project that will require a
current of approx 6ma to key a remote control (similar to the
method used by modern and not so modern commercial gear)
Do these generate enough current when the ptt switch is pressed
to do the job or do the phones just create the bare minimum to make
thier own loop (current unknown to me, that is why I am asking)
work? Can someone recommend a field phone that might work and
that might be available for cheap from the usual sources. Or any
sources for that matter......

Darned I wish I could find my pair of EE-8's.

I promise it will be used to control stuff with tubes in it, Jack. :-)

Thanks

Tom

Message-Id: <199806131515.QAA08747@punt2.hw.ac.uk>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
From: Bill Jarvis <B.H.Jarvis@hw.ac.uk>

CC: boatanchors <boatanchors@theporch.com>
Date: Sat, 13 Jun 1998 16:14:41 -0600
Subject: Re: AVO tube tester

On 1998-06-13 rparker@istar.ca said:
> >I've heard great things about AVOs- never even seen one in person.
> >Ethan
> I remember using one in about 1963 while working for CBC-TV in
> Edmonton. Big sloping front thing. Lots of knobs. Took a lot of
> time to check a tube, but probably was worth it. Haven't seen one
> since. Ralph, VE7XF

The original AVO valve tester was introduced in 1936, and soon "integrated" into a one-block product. These instructions are for one of the earliest; but it is easy to see how they apply to more recent models.

If anyone else has one, and does not know how to use it, I hope this might be helpful.

High voltages, in excess of 250, are present so the user must accept full responsibility for any consequences of using, or attempting to use, instruments like the one described.

There is one by my left foot as I write; it's an early 40s model. It is in 2 blocks with a 9-pin plug (which has 4 mm pins) and flex between them.

And if anyone can help me date it, I'd be grateful. (Yes, OK, and value it! It's in pwo with only one relatively new component inside; cosmetically needing nothing but elbow grease to restore it to 95%.)

INSTRUCTIONS

Switch off before altering any switch settings and/or plugging in or removing a valve to be tested.

Set bottom left switch (mA/V) fully left (anti-clock); bottom right (set-zero) fully right (clock).

Look up the valve to be tested; in this example it's AC2/pen/dd

Filament or heater 4 V so set HEATER to 4

Anode 250 so set Va to 250

The valve is a double-diode-pentode; we will test the pentode first so set the Anode Selector switch to Normal. (We will use the 3 other

options later.)

Back to the tables for Vsg which is 250, so set Screen to 250.

It is important to test for gas before doing anything else. There are 2 4mm sockets either side of the mains switch (bottom centre of mains unit). Have two flexible leads ready to plug into these.

Switch ON. The pilot light should come on.

Insert the two flexible test leads all the way. As you insert the left hand one, the pilot light should go OUT. There is now 250 V AC, current limited by resistance, across those flexible leads. Touch them together; the pilot light should come on again momentarily.

Refer to the Tables for the pentode anode; it's pin 2. Clip one of the flexible leads to this.

Touch all the other terminals with the other lead, one at a time. If there is anode to anything leakage, the pilot light comes on and you either have gas, or a solid short inside the valve or its base.

Repeat using the diode anodes, pins 1 and 3.

Next use the flexibles to test for heater continuity: pins 4 and 5. This time you hope the pilot WILL come on.

To test for heater-cathode leakage or breakdown, test between 6, and (5 or 4 [both]). This time you hope that the pilot will NOT light.

Now turn OFF and set up the Roller switches. Pin 1 is diode 1 anode so set roller 1 (pin 1) to Number 8, 8 being the line to be tested for "Diode 1" function in ANY valve.

Pin 2 is pentode anode so Roller 2 must display 6 (anode).

Pin 3 is Diode anode 2, so Roller 3 = 9 (D2).

Pins 4 and 5 are heater, lines 2 and 3.

Pin 6 is cathode, line 1.

Pin 7 is screen grid, line 5.

The Top Cap is G1 so plug a flexible lead into the MIDDLE of 3 4 mm sockets almost dead centre of the valveholder board. This socket is permanently connected to Line 4, control grid, and in this case must go to the top cap.

There is no pin 8, nor pin 9, so rollers 8 and 9 MUST be set to Line number 0 (not connected).

In the AVO Valve Data Manual which always gets lost over the space of 50 years, all the above would have been signalled as

"Set roller switches to 869231500".

Always double check, otherwise you could be about to destroy the valve and/or the AVO.

This is most easily done by reading the small letters engraved under the Line Numbers. The following should now be showing:

d1 a d2 h h c s e e

That line can be remembered in one "chunk" whilst you check it against the base (pinout) diagram.

Double check that the top cap is g1 and is connected to the MIDDLE fly socket. (The left socket is Line 6, anode; and the right hand one is Line 5, screen.

Note how AVO made it easy to remember their numbering, starting from the bottom end of the (UK) tube diagram:

c h h g1 g2 a [d1 d2 top cap]

Check that mains is OFF. Plug in valve and connect top cap to Line 4 (g1).

Check that the "Heater volts divide by 7" switch, on the Valveholder Board just below the row of Roller Switches, is at "Normal".

Switch on. As heater warms up, Indicator Needle should drift upwards.

MAKE SURE the "Set mA/V" control is at 100 (fully left), and when the meter indication has become steady, it is the _initial_ anode current of the valve, in this example 43 mA.

BALANCE this out by turning "SET ZERO" until meter reading is 0.

Now turn "mA/V" knob to the "mA/V" position and double-check the zero setting.

Push the keyswitch to the left ("mA/V") and the needle now points to the mutual conductance (transconductance) in mA/V, full scale being 10 mA/V.

In the working example I get a reading of 7.5 mA/V. The figure given in the Valve Data Tables is 8.5, but the test is not necessarily at exactly the specified anode and screen voltages. So the valve is "nearly as good as new" in this respect. The "goodness" may be expressed as well into the green (good) section of the dial; or as 7.5/8.5 = 88%.

An alternative approach is as follows: Back the initial anode current off to zero. Read the intended conductance, 8.5 mA/V, from the Data Manual. Set the mA/V control to 8.5, then push they keyswitch to the left. The needle goes up to read 83%, which is in good agreement (for this kind of tester) with the figure obtained one paragraph back.

Remember: mA/V to 100 to begin with, so that initial, uncancelled anode current is unlikely to harm meter.

mA/V to "mA/V" for measurements.

IF mA/V IS LESS THAN 1 (usual in 1.4 V valves and other physically small kinds), you may set "mA/V" to 1 instead of 100, in which case the full scale deflection when they keyswitch is pushed to the left is 1 mA/V.

HEATER/CATHODE INSULATION: This is next to be tested. First set Screen Voltage to 60. Push the keyswitch to the right. Read the BLACK scale in megohms. Heater-cathode insulation resistance of under 250,000 ohms is a common cause of hum.

CREEPING ANODE CURRENT:
Rarely, Ia rises SLOWLY during testing. Vscreen may then be reduced without greatly affecting accuracy.

TWIN TRIODES:
Use the anode selector at NORMAL, then at A2. Generally the results should be very close.

DIODES:
FIRST lower the anode testing voltage by setting ANODE to D.
Set the "mA/V" control at mA/V. The full scale reading is now 10 mA/V. Normal readings fall between 0.5 and 5 mA. In our example, separate readings are found for (Select Anode) D1 and D2. If the diodes have distinct uses, eg audio and AVC, a big difference might not matter but normally one hopes for similar readings. In an FM or other balanced diode detector application, you are of course looking for very similar readings.

RECTIFIERS
Set ANODE VOLTS to REC, and mA/V control to 100. The meter now indicates emission, full scale 100 mA; and in full-wave rectifiers the two (D1 and D2) should be within 10% otherwise smoothing is less effective, and the

"good" half does more than its fair share of carrying the load current.

Do not expect large rectifiers to show over 100 mA emission per anode, because they are being tested way below designed operating anode voltage.

FREQUENCY CHANGERS (CONVERTERS)
Two sets of data are given. Test the triode section first (oscillator) with the anode selector at "normal", and the screen voltage at 60.

Then test the mixer section with the anode selector at A2.

PINS MARKED IC (INTERNALLY CONNECTED)
Use a LOW RESISTANCE ohmmeter to find out which pins are connected to which other pins.

MOST DAMAGE DURING TESTING arises from unexpected internal pin connections. They are not always as advertised! A valve might have been replaced with an electrically similar one which has different ICs.

1.4 V valves
Set the heater/filament voltage to 10 and move the HEATER VOLTS switch to "divide by 7".

ALL WRONG SETTINGS ARE LIKELY TO DAMAGE THE VALVE UNDER TEST.

VALVEHOLDERS NOT SUPPLIED
Rob a dud valve of its base, to make an adaptor for the base you require. Pin 1 to pin 1, 2 to 2 etc.

OR, construct an adaptor having flexible leads with croc clips, NUMBERED, wired to a vandalised valve base. For greatest flexibility use a 9-pin base and 9 flexible leads. Leads of varying lengths are less likely to "short".

============   =====   =====   BILL J.   =====   =====   ============
GM8APX, qthr   Edinburgh, Scotland, UK

Sic friatur crustum dulce

Net-Tamer V 1.11 - Registered

Date: Sat, 13 Jun 1998 11:27:18 -0700 (PDT)
Message-Id: <2.2.16.19980613112400.428f9f70@pop.igc.org>
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"
To: Old Tube Radios <boatanchors@theporch.com>
From: Dick Dillman <ddillman@igc.apc.org>
Subject: 13VI98 NR1 CK526 WB6TMY

I received the message below from Tracy, former transmitter engineer at KPH, in response to a message on the list about TTY interference to AM broadcast band signals. Any responses should include Tracy's email address as he is not at present a BA list subscriber.

Regards,

Dick Dillman

>Dear Dick,
>
>Would you be willing to post the following on Boatanchors for me?
>
>---
>
>Dear Boatanchor Friends,
>
>1.
>When I was at KPH some years ago we had a complaint from an amateur in Idaho
>- quite a distance away - that our SITOR (AMTOR) signals were interfering
>with an AM station on 1140KHz. The BC signal at his home was quite weak as
>Richard mentions in his situation. We found out that his (LO) local
>oscillator was 1140 + 455 = 1595 KHz.

>
>Now, hold on to your hats, his LO had harmonics!
>
>1595 X 5 = 7975 KHz. 7975 + 455 = Receiving at 8430 KHz
>
>This is 3 KHz away from our 8427 KHz SITOR (AMTOR) transmitter.
>Experimentation showed clearly that with the amateur on the phone, taking the
>transmitter off the air cured his problem. He insisted we were on 1140 KHz,
>and I pointed out that even KNBR with 50,000 watts was not receivable at his
>location. Finally he accepted it and got a better radio - he called me back
>& his problem was cured.
>
>2.
>Another complaint from another amateur in Idaho was received two years later
>on night reception of KGO 810 KHz. His LO was at 810 + 455 = 1265 KHz.
>
>1265 X 3 = 3795 Khz. 3795 + 455 KHz = Reception at 4250 KHz. This is 3 KHz
>away from our 4247 KHz CW transmitter, and experimentation showed that keying
>this transmitter produced the interference in his radio at his home.
>
>Although not widely accepted, it is a fact that this sort of thing is not
>uncommon when receiving weak signals on the broadcast band.
>
>You may be wondering why both these complaints were received from amateurs.
>Members of the general public are not able generally to identify the callsign
>of a SITOR (AMTOR) or CW emission, and unable to track it to the source.
>Both of these complaints were received because the person had enough "savy"
>to reach me. Hundreds, perhaps thousands of these events occur with the
>unfortunate person being unable to find out the source.
>
>If Richard will measure his LO with some accuracy, multiply the harmonics and
>tune for signals at plus or minus the IF, he will likely find his culprit
>quite easily.
>
>Very 73,
>
>Tracy "TR" WB6TMY
>
>Primary ---- Radions@jps.net
>Secondary -- Radions@juno.com

Dick Dillman
<ddillman@igc.apc.org>
WPE2VT W6AWO
Collector Of Heavy Metal:
Harleys, Willys and Radios Over 100lbs.

End of BOATANCHORS Digest 2090
****